Q1: How large are K_R and ρ_C ? What is the role of ρ_C in eq. 6?

My computed values would have some error largely due to the fact that my global constants were initialized with low precision with a few decimal places as a shortcut, using exponents as I remembered them off the top of my head having frequently used them apart from solar masses, which I've never used before and so had to look up it's value.

K_R= 4900922905.690681m.kg.s, ρ_c= 3834950046.297362kg/m^3

ρ_c,I believe to be used because there is a factor of r-squared for the radius in the denominator of $\frac{\partial\theta}{\partial r}$, and so firstly we need some non-zero value for the radius. Secondly, the role is to stitch the relativistic and non-relativistic cases and match both cases one density where the relativistic and non-relativistic cases intersect, as this value was originally found from the discovered intersection of the logarithm of the pressure terms (1) and (2) in the task sheet:

$$P_N(r) = K_N\rho_c^{\frac{5}{3}}, P_R(r) = K_R\rho_c^{\frac{4}{3}}$$

In short, the main role is to fit the one-size fits both pressure approximation of (3).

Q2: What happens to the radii of the white dwarfs as their masses get larger?

The radii decreases and consequently with an increased mass and decreases radius, it makes sense that the density would increase, which is the observation from the computed data. Density is indeed observed to be proportional to radius:

$$\rho \propto R$$

Q3: Is there a maximum mass which a white dwarf can have? If so, how large is this mass?

Well, according to the datafile, it converges to roughly 1.4 solar masses. Can't speak to the precision really, because the defined central density interval didn't really capture more, frankly whether or not I extended the interval is not so important. The important part was given in equation (3) of the assignment which is probably beyond my depth - I'm not sure as to the exact accuracy of the approximation(but am convinced it's good enough for me from literature) nor how to model approximations like that(really cool that both the relativistic and non-relativistic relations just get lumped together in a nice fraction like that) but, based on known literature[1], the Chandrasekhar limit does agree that the limit is established at roughly 1.4 solar masses.

[1] http://farside.ph.utexas.edu/teaching/sm1/lectures/node88.html